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Adapting to Change:
What Motivates Manitoban Schools to Learn

This study assesses the relative importance of environmental, intraorganizational, and contextual factors that explain the process and outcomes of organizational learning in six Manitoba schools. Based on the data provided by 265 teaching staff and their principals, the present findings verified that transformational leadership, supportive school culture, and flexible school structure were persistent factors in accounting for organizational learning and adaptation. Environmental variables acted as motivational forces that served to break away from individual and organizational inertia. The effect of contextual factors reasserted the idea that schools were unique and that changes could not simply be transplanted without considering the characteristics of staff and their schools.

Cette recherche évalue l'importance relative de facteurs environnementaux, intraorganisationnels et contextuels pour expliquer le processus et les résultats de l'apprentissage organisationnel dans six écoles au Manitoba. Reposant sur les données fournies par 265 enseignants et directeurs d'écoles, les résultats ont confirmé que le leadership transformationnel, un milieu scolaire coopératif et une structure scolaire souple constituent, de façon systématique, des facteurs explicatifs dans l'apprentissage organisationnel et l'adaptation. Des variables environnementales agissaient comme forces motivationnelles permettant de s'éloigner de l'inertie individuelle et organisationnelle. L'effet des facteurs contextuels a réaffirmé la notion selon laquelle les écoles sont uniques et que les changements ne pouvaient pas tout simplement être transposés sans tenir compte des caractéristiques du personnel enseignant ou de l'école.

Background

In tracking the origin of the recent Canadian school reform it is probably possible to pinpoint twin forces at work. Externally, school reforms in the United States and the United Kingdom that fuel political, economic, and cultural globalization and keen international scholastic competition exert a ripple effect on Canada. Beneath the urgency of Canadian response is a fundamental worry about the quality of human resources that the system produces vis-à-vis those prepared by other developed countries. Internally, the conventional political wrangling between federal and provincial governments in the educational system brought the reform agenda to the forefront. To the federal action of "prosperity initiative" (Prosperity Task Force, 1992) and the subsequent provincial reaction in the form of the Victorian Declaration of 1993, a new Pan-Canadian education agenda was developed (Lam, 1998). Various provincial documents in the form of blueprints and green, white, and brown papers have appeared recommending fundamental changes to the public school system.

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Three features tend to segregate the current reforms from those of earlier decades. The first is that in the intense political interplay power has shifted among interest groups. The ascendancy of corporate businessmen and key stakeholders in the community in formulating educational policies has marginalized the traditional players of public educators. The second is the top-down endorsement of a new paradigm that frames both the spirit and contents of reform. The third is the similarity of focus, although the uniqueness of the public school systems has been jealously guarded by provincial governments.

Set against the backgrounds of jurisdictional wrangling between the federal and provincial governments, which has been an enduring feature in the Canadian education landscape (Sackney, 1990), the planning committees at both federal and provincial levels have been dominated by corporate businessmen. This is by no means an accident in the 1990s, as the New Right politics of the Progressive Conservatives and other right-leaning parties swept across many provinces. The key concern has been a tightening of links between education and work, increasing efficiencies within the system while cutting costs and increasing parental choice.

At the provincial level the political action of the government can best be understood in the context of Gramsci's theory of hegemony (Centre for Contemporary Cultural Studies, 1981). Here the dominant groups—government and business—through the negotiated construction of a political and ideological framework strive to integrate or even superimpose ideas on the subordinate groups—traditional education stakeholders (Strinati, 1995). Fueled primarily by fiscal crisis, some provincial governments across Canada typified by Alberta's "Klein revolution" (Taylor, 2001) adopted such a strategy to reduce dissent, cement their reform agenda, intimidate critics, and mobilize dissatisfied parents and employers.

Cherished by the dominant groups is the neoconservative ideology of "economic rationalism," which is at odds with the values of most educators. In essence, it is

> a kind of ideological gridlock in which economic instrumentalist imperatives are given precedence ... The technical-rationalist emphasis on job skill development tended to subordinate educational considerations which seek to develop high cognitive and critical capacities.... to the margin of the main game. (Burke, 1997, p. 4)

Foreign and perhaps even repulsive to educators, the concept, to be fair to the initiators, is not "arbitrarily or heedlessly borrowed from some convenient economic principles" (Lam, 2001). It represents a painstaking revision of past remedies, now discredited as piecemeal and superficial. In their all-out search for fresh insights, governments and business people look to successful corporations for reference and eclectically adopt the principles of efficiency, productivity, and accountability in restructuring the school system.

Lest such reform lose momentum as a result of traditional consultation or become entangled with debates that dilute the purpose and content of mandated changes, some provincial governments, notably the Progressive Conservative Government of Manitoba, showed no courtesy toward even routine legislative deliberations (Lam, 1998). The government did not permit any school jurisdiction to deviate from the established schedule in completing the

tasks assigned. The resurgence of bureaucratic control once again defined a tighter parameter for the regional, district, and local authority to operate.

Objectives of This Study

Against this emergent unfamiliar landscape, this article looks for primary sources that motivate schools to adapt. Pertinent to the search is the need to demarcate boundaries in which relevant forces are identified and to provide a clearer definition of adaptation criteria displayed by school organizations. Supplementary to this objective is the mapping of the causal relationships among all pertinent factors and the selected adaptation criteria so that patterns of critical linkages can be identified.

In delineating the area for factors that motivate school organization to adapt, I consulted literature in educational research and organizational studies. Indeed, the latter carries more weight in this review because it has made more advances in analyzing the nature of external environment and organizational dynamics. I elaborate below.

The adaptation criterion for schools adopted for the study is *organizational learning* (OL), a popular theme in literature of various domains. That OL should be the major thrust of recent research including ours is not an accident, given a unifying concern among scholars and practitioners about the survival capabilities of the school organization in a time of turbulent environmental transformation. A corresponding conclusion is that if all schools can become "learning organizations," they should be more resilient to whatever uncertainty may come (Claudet, 1999; Dixon, 1992; Schlecty, 1990).

Many definitions of OL exist. Perhaps Rait (1995) provides the best summary, stating that OL is detecting, correcting past errors, and changing behaviors using new insights and knowledge generated from the process of gathering information and making sense. Embedded in this definition is an adoption of "double-loop learning" (Arygris & Schön, 1996) that accepts a new set of values and assumptions when breaking away from individual or organizational inertia. In addition, because the external environment is undergoing continual change, learning organizations should have a culture that functions as "a perpetual learning system" (Schein, 1992). In other words, a learning organization is one that is critically self-reflecting and self-correcting in facing change.

Encompassing OL are two key dimensions, that is, organizational learning *process* (OLP) and *outcomes* (OLO). In their theoretical underpinnings, process was derived from the systems model (Campbell, 1977), which is about individual actors and about the organic nature of the organizations in which they function. The outcome grew out of the goal model (Hoy & Miskel, 1996), which emphasizes the degree to which incumbents of the organization achieve established goals. Because organizations do not have a memory as individuals, outcomes of OL are arguably stored in accomplished tasks or in written records (Lam & Punch, 2001).

Changing External Environment and Sources of Adaptation

Before the significance of OL is clearly understood, the changing nature of the external environment should be contemplated anew. Indeed, many Canadian educators seem unaware that schools have become the focal points of public

attention. The once familiar institutional environment has slowly evolved into a more turbulent, task-related environment (Hoy & Miskel, 1996). In the past the public school system, once the basic conformity to societal rules and procedures was satisfied, would have achieved institutional legitimacy and been sheltered from direct public scrutiny. In contrast, the technical or task-related environment ushered in by the current school reform empowers the government to assess organizational performance in a different paradigm. Rather than focusing on input and process, the attention is shifted to tangible outcomes. Instead of leaving the operation of an organization in secret in the name of professional autonomy, it now has to be transparent and publicly accountable. If a school fails to satisfy public expectation, it may fall prey to market forces. The dwindling resources accompanying the decline in enrollment may spell an end to that school.

In such urgent circumstances, individuals in the school organization must learn the rules of the new game. Should the entire organization undergo regeneration in order to provide the maximum niche with its external context? The question of organizational learning, then, is no longer concerned with those ideas expressed by ecologists (Hannan & Freeman, 1984, 1989) as to whether resource consumption in the learning process might heighten the risk of an organizational failure. Rather, it becomes how much learning is needed to withstand the onslaught of the "punctuational change" (Gould, 1980), a biological term for radical environmental change that threatens organic or institutional survival.

Such a potential menace encourages us to revisit the decade-old debate about the momentum or sources of change. Should we subscribe to the postulate that changes are brought about by "environmental imperative" advocated by the environmental determinist school (Aldrich, 1979)? Or should we be persuaded by the suggestions of the strategic choice school (Hannan & Freeman, 1989) that changes are initiated by top organizational echelons through voluntary choice?

These competing interpretations, however, have never been verified empirically. Rather, the debate is anchored mostly on the conceptual comprehensiveness of the two schools. Astley and Van de Ven (1983), for example, attempt to achieve theoretical synthesis by stating that various types of organizations exhibit distinct coping strategies, so that evidence of "environmental determinism" and "voluntary choice" coexists. Hrebiniak and Joyce (1985) rationalize that the viewpoints of the two schools represent extreme positions along the same continuum. Those who examine organizational details—Lam (1997), for example—find that distinct coping strategies can be attributed to various hierarchical positions in the same organizations depending on the incumbents' environmental scanning ability and sensitivity to impending problems.

Conceptual Framework

To achieve the twin objectives of identifying the sources of changing momentum and charting the relationships among variables that account for schools' OLP and OLO, sources of the conceptual framework need to be established. A preliminary review of the literature shows that external environment, internal conditions in the school, and the contextual variables related to staff and

schools are key sources that affect the organizational adaptation abilities of a school reflected in OLP and OLO. These are reviewed below.

Contribution of External Environment to Organizational Learning

Among scholars who advocate external environment as critical to organizational adaptation, four issues are handled separately: (a) motive, (b) relationships, (c) source, and (d) effects of organizational change. For *motive*, Tushman and Romanelli (1985) stress that the time for an organization to change is ripe when the transformation of environmental conditions renders previous organizational strategies and orientations obsolete. Restructuring the organization, revamping the system of organizational process, and relearning new intraorganizational and extraorganizational working relationships seem to be the only courses of action for an organization that seeks to survive (Haveman, 1992).

As to the second issue, researchers explore the types of *relationships* that might exist between the external environment and the organization. Two possible types of organization-environment relationships exist. To Pfeffer (1970), Amburgey, Kelly, and Barnett (1990), and Hannan and Freeman (1989), environment engenders hostility, uncertainty, and constraint in organizations and heightens liability in an organization's performance. From a micropolitical analysis (Bacharach, Bamberger, & Sonnenstuhl, 1996), environmental changes create cognitive dissonance and disrupt the established logic of action. Through the linkage of political and psychological concerns for balance of power, individual behaviors merge with the organizational action, and a mechanism is established that triggers transformation at the institutional, managerial, and technical levels. These tensions between an organization and its environment impel the organization to search for new patterns of relationship in order to minimize incongruity.

For the third issue, researchers undertook the empirical tasks of identifying the impetus of organizational change. Astley (1985) focused on technological change as the force behind structural reordering. Carroll (1987) highlighted political turmoil as the basis for punctuational change. To these environmental changes that affect an organization are added new interpretations of some of the prevailing relationships that exist between the organization and its environment. These include *constraints* (Lam, 1985a), *uncertainty* (McCabe & Dutton, 1993), and *resource dependency* (Koberg & Ungson, 1987). All these factors motivate organizations to search for new directions, new approaches, new strategies, or new alliances in their learning process.

For the fourth issue, Amburgey et al. (1990) and Swaminathan and Delacroix (1991) among others map organizational change and its consequences. All tend to support the view that change does not come naturally and that its effects are uncertain. Rather, change is motivated by abrupt alteration of external situations that threaten the organization with extinction. Haveman (1992) suggests that if strategies of change are developed, those most likely to guarantee success of transformation would come from the realm of organizational competence.

Contribution of Internal School Condition to Organizational Learning
Followers of the strategic choice school focus on two main issues. First, what role do leaders play in bringing about organizational learning? Second, what internal conditions should leaders strive for in preparing their organization for change?

Regarding the role of leaders, consensus in recent research (Kofman & Senge, 1993; Mohrman & Mohrman, 1995) reiterates the importance of school principals in organizational learning. Recent educational changes further accentuate their role in this domain (Silins, Mulford, & Zarins, 1999). New challenges and accountability for school performance all call for *transformational leadership* to maximize collective learning in the face of new challenges.

As to internal conditons, many researchers zero in on leaders' efforts to change the internal conditions of their organization. Stopl and Smith (1995), Johnston and Wartel (1998), and Karpicke and Murphy (1996), for example, emphasize the role of leadership in transforming the norms, values, beliefs, and assumptions of organizational members. Such transformations subsequently influence how they make decisions and put their decisions into practice. To the extent that the organizational culture shapes and solidifies "consensus and cooperative planning," it fosters a new environment (Reynolds, Sammons, Stoll, Barber, & Hillman, 1996) for the relearning process to take root. Furthermore, these cultural characteristics of organizations were found to be conceptually similar to the purposes and goals of schools, social networks, and people. Leithwood and Jantzi (1998) substantiated such a phenomenon using factor analysis when they found that only one factor emerged from all these data.

School structure is another important internal school condition where leadership may exert influence (Hallinger & Heck, 1998). In their literature review, Hallinger and Heck insisted that leadership be linked to organizational roles and the network of relations among roles, because this network comprises the organizational system. Such relationships, as Leithwood and Jantzi (2000) believe, contribute to school effectiveness not only because they support the purposes of the curriculum and the requirements for instruction, but because they also facilitate the work, professional learning, and opportunities for collaboration of the staff.

In retrospect, through the effect of transformational leadership and cultural and structural characteristics, internal school conditions are ripe for collective learning to occur. Preliminary qualitative data provided by Leithwood, Leonard, and Sharatt (1998) reaffirm this position.

Contribution of Contextual Variables to Organizational Learning
Two subsets of contextual factors do not receive adequate attention in research when assessing their relative effects on organizational learning. One pertains to the organization itself, whereas the other describes the characteristics of individuals who make up the organization. Included in the first category are such attributes as school size, location (urban/rural), history (tradition), and the nature of the community served by the school. Falling into the second category are factors such as the gender, experience, qualifications, and roles of the staff in the school organization. Both categories of contextual variables are

deemed important in broadening our understanding of learning processes in organizations.

Research on the effects of organizational characteristics on collective learning is both sketchy and sometimes inconsistent. Small school size is reported as an important factor for productive organizational functioning (Bryk, Camburn, & Louis, 1997), whereas shared decision-making is found to be unrelated to any particular size (Boyle, Boyle, & Brown, 1999). Schools in distinct locations also vary greatly in the makeup of teachers. Urban schools seem to enjoy a more advantageous position than those in rural districts in terms of recruitment of qualified personnel. Few studies examine the roles of history or tradition of the school in its learning process. However, if we base our assertion on what Hannan and Freeman (1984, 1989) proposed, we would agree that the longer the history an organization has, the stronger will be its tendency to hold onto past practices. Similarly, few empirical clues exist about how the nature of the community served by the school affects its organizational learning. However, conditions of life and parental values do exert differential expectations on school performance. Burns, Homel, and Goodnow (1983) found that parents living in industrial or commercial districts undervalued school performance, striving for achievement, and curiosity. Those in communities of higher socio-economic status, on the other hand, put greater value on children's sociability, self-control, tidiness, and performance. If schools wish to synchronize with the expectations of the community, they may have to reorder their own values and redirect their learning toward accommodating parental priorities.

People are important because, as Marsick and Neaman (1996) logically argue, those who learn create organizations that learn. Gender studies (Sadler-Smith, 1996) begin to show that cognitive style and learning preference appear to be mediated by gender. This merits further investigation on the combined effect of gender and cognitive style on a range of workplace attitudes and behaviors. In terms of experience, if we accept the scenario of Watkins and Marsick (1993), we should acknowledge that filtering information and searching for solutions involve one's selective perception, values, and beliefs. All these, as Mezirow (1991) explains, are strongly influenced by social and cultural norms in the schools. To this extent the characteristics of individuals are generally products of the cultural characteristics of the school. In addition, as individuals grow in experience (Mazen & Jones, 2000), qualifications, and promotion to higher positions, they will probably be more self-confident and more willing to take risks and embark on the learning process.

Methods

Instruments

The tool for collecting data was a survey consisting of two components. The first probed background information on both teachers and schools. Age, position in school, gender, years of experience in the present school, and involvement in administration were personal factors examined. The size of the school (measured in numbers of teachers and students), school setting (urban/rural), and school tradition—deemed contextually important both from the logic of reasoning and from the literature review—were included. The data were gathered by categorical selection.

The second component consisted of three parts, with items measuring school environment, internal school conditions, and OL indicators. Combining the three parts, 63 items, each attached with a five-point Likert scale ranging from *very seldom* to *always* were constructed for participants' responses. In essence, items for assessing school environment were derived from the abbreviation of a School Environment Constraint Instrument (SECI) developed earlier by Lam (1985a). Through a pilot sample of 100 teachers the constraining effects of eight environmental factors on the school—policy, control, funding, resource, social values, enrollment fluctuation, ethnic relationship among students, and second-language demands—were factor analyzed. Five variables, namely, policy, funding/resource, social values, enrollment fluctuation, and second-language demands were derived. Alpha reliability of these factorized variables ranged from .5501 to .7073, deemed satisfactorily high after a few dubious items were discarded.

The second part consisted of items borrowed from a study of Leithwood et al. (1998), which identified specific characteristics of transformational leadership, school culture, and school structure. Specifically, measuring transformational leadership were items about such actions as *articulating vision, fostering group goals, supporting individuals, engaging in reflective/critical thinking, providing models, entertaining high expectations, developing shared norms,* and *encouraging collective decision-making.* Indicators of school culture included items probing *mutual support, respect, risk-taking, honest/candid feedback, success celebration,* and *needs/achievement of students.* Structural indicators encompassed *frequent problem-solving sessions, flexible timetabling, regular PD, common preparation periods, cross-department appointments, integrated curriculum teams,* and *team teaching.* All these characteristics were deemed to contribute to organizational learning. Again, factor analyses were performed, and it was found that items from each of the three factors were homogeneous. No modification had been made. Alpha reliability tests on the three factors yielded coefficients ranging from .8931 (leadership), .8107 (structure), to .8213 (culture), which are considered to be extremely high.

The third part consisted of items that measure indicators of OL. An extensive search of the literature on OL (Cohen, 1996; Huber, 1996; Lam, 2001; Lam & Punch, 2001; Preskill & Torres, 1999; Senge, 1990) furnished the basis for probing OL. The items that measured OLP included *collective ability to change, pride in taking part in collective problem-solving, satisfaction with group learning, continual searching for ways to improve collegial coordination, beneficial effects of team work on personal viewpoints and experience,* and *effectiveness in achieving group goals.* Items pertaining to OLO encompassed *we continue to revise developmental objectives and direction, establishment of partnership with parents in supporting student learning, experiment with diverse methods of enhancing teaching and learning processes, large scale revision of curriculum,* and *development of various manuals to improve administrative procedures.* Subsequent factor analyses confirmed OLP and OLO. Reliability alpha coefficients derived from the regrouping of items after factor analyses were found to be .8858 for OLP and .8246 for OLO.

Sample
Altogether, six public secondary schools in Manitoba were approached for data collection. Of these two were in an urban area, one was in a suburban district,

and the rest were in rural areas. Aside from settings, these schools varied considerably in the nature of communities and in size. Two were in higher socioeconomic status districts, and four were in working and farming communities. Two had enrollments of over 1,000 students whereas four others had enrollments ranging from 450 to 900 students.

Before we distributed the survey instrument we were in touch with most of the principals. Of these, about 10 gave permission to present the project to their staff during their weekly meetings. After the presentation, when the nature and objectives of the project had been made clear to the staff, they were left to make the final decision. When most of the staff in a school showed an interest in providing data, a research team of two was sent to distribute and collect the questionnaire after school hours. Six schools with 265 teachers and their principals, representing slightly over 80% of the consenting sample, returned usable data for analysis.

Results

Before closely examining the findings from the research questions, it seemed useful to scrutinize the profile of environmental constraints (Figure 1). From this profile it would seem that those constraints from enrollment fluctuation, policy, and second-language demands were moderate. On the other hand, constraints from funding and resources and social values (i.e., compatibility between students' values and those professed by schools) tended to be high. How these external constraints had triggered organizational learning individually or collectively was important.

Relative importance of environmental, internal, and contextual factors affecting organizational learning

Three subsets of factors with respect to their contribution to school organizational learning were compared through a series of multiple regression
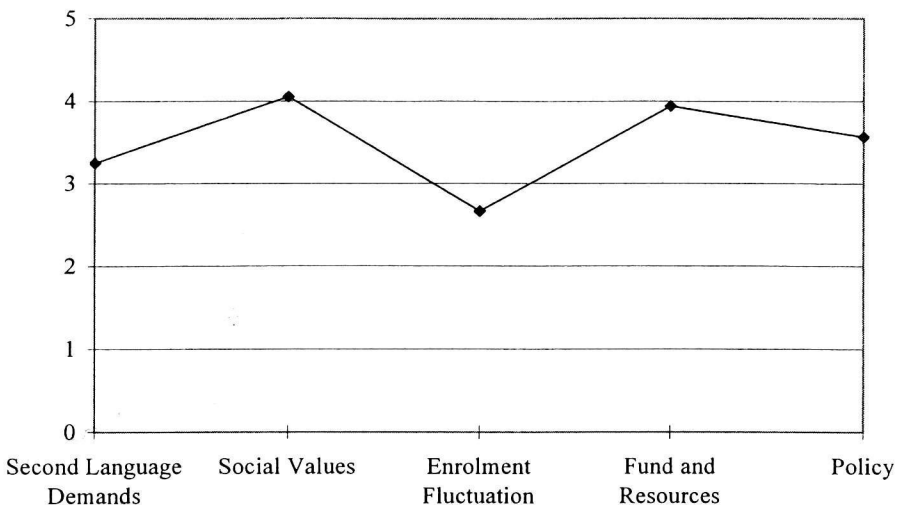

Figure 1. Graph showing the degree of constraint from environmental factors.

analyses, that is, the effects of all environmental factors, internal school factors, personal, and school variables were independently entered into equations. To determine the relative importance of these three subsets of factors, the beta weight associated with each factor in each domain was referred to. The *R* square values generated from each equation registering the relative importance of contribution of factors from each domain were compared and the error components estimated (see Table 1).

Only one environmental factor, policy, was found to have a persistent effect on OLP and OLO. Possibly constraints from rapid policy changes disoriented school personnel. Subsequent collective learning and institutionalization of the coping strategies were meant to stabilize internal school conditions and shield the school from external uncertainty and turbulence. On the other hand, its total *R* squares contributed to the organizational learning process was 0.050, and to the organizational learning outcome 0.032. These imply that as a whole the environmental variable is only marginally important as a force to explain collective learning and achievement.

Internally, school factors such as transformational leadership, school structure, and school culture all exhibited high beta weights. All three persistently affected both the OLP and the OLO. Their combined effects (*R* squares)

Table 1

Comparison of the Relative Effects of Environmental, Internal, and Contextual
Factors on School Organizational Learning

Source	Factors	DV	β^*	R^2	Error
Environmental	Policy	Organizational learning (process)	−0.153	0.050	0.950
	Policy	Organizational learning (outcome)	−0.141	0.032	0.968
Internal	School culture	Organizational learning (process)	0.324	0.829	0.171
	School structure		0.304		
	Leadership		0.395		
	School culture	Organizational learning (outcome)	0.221	0.635	0.365
	School structure		0.224		
	Leadership		0.376		
Contextual	Teacher post	Organizational learning (process)	0.244	0.150	0.850
	School size (No. of students)		−0.208		
	Strong tradition in school		0.236		
	Gender of teacher	Organizational learning (outcome)	0.169	0.178	0.822
	Teacher post		0.245		
	School size (No. of students)		−0.220		
	Strong tradition in school		0.207		

*All beta weights attained 0.05 or better.

on two indicators was 0.829 for OLP and 0.635 for OLO. These were much greater than those from external or, as discovered later, even contextual sources. In this sense these internal school conditions should be viewed as the dominant source promoting collective learning and achievement.

In terms of contextual sources, three common factors were found to have a persistent effect on school learning and outcomes. These included school size, strong tradition in the school, and teachers' position in the school organizational hierarchy. Close scrutiny indicated that school size contributed negatively to learning and achievement. Apparently the complexity and established organizational routines associated with large school organizations deterred staff from freely engaging in collective learning and accomplishment. On the other hand, teachers' career advancement reflected in their current positions in the school suggests that competence and self-confidence were key elements in taking risks when embarking on learning new approaches and strategies and on enshrining their learning outcomes into standardized administrative procedures and policy handbooks.

The gender of teachers was found to be an additional factor that affected collective learning outcomes. Although it is difficult to speculate without in-depth interviews as to how gender affected organizational learning, we might tentatively adhere to Smith's (1983) theory that gender is related to specific learning style. Female teachers are field-independent learners and tend to appreciate collaborative problem-solving, which leads them to consensus faster than field-dependent males. Thus it is likely that female teachers would play a more active role in converting collective learning in a supportive culture. This was to be substantiated in the path analysis that follows.

Causal network among three subsets of variables

To search for the causal relationships among external and internal school factors and OLP and OLO in various contextual situations, a series of path analyses associated with significant contextual variables were carried out. Such an approach had taken into consideration that the categorical or discrete nature of the contextual factors prevented their direct entry into path models. Two stages of work were undertaken in sequence. In the first, attempts to identify maximum variation among subcategories of each significant contextual variable were made through analyses of variance (ANOVA). These help pinpoint the contextual sources from which maximal variations in OL occur. In the second stage, path models depicting the causal linkages among significant environmental factors, internal school factors, and OL in all important contextual situations were constructed. To avoid technical overload, only patterns of key variables that exerted direct and indirect causal relationships on organizational learning (process and outcomes) are presented in Table 2.

Patterns of Causal Linkages Associated with Significant Contextual
Variables and OLP

Among the contextual variables that were found to contribute significantly to organizational learning process (OLP), three showed sufficient differences among their subcategories to justify further scrutiny. These were position, school size, and tradition.

Table 2
Patterns of Causal Relationships with Organizational Learning (Process)
Derived from Path Analyses Based on Significant Contextual Variables

	Contextual Variables	*Variables having Direct Effects*	*Variables having Indirect Effects*
Position	Teaching staff	School culture	
		School structure	
		Leadership	Leadership
	Administrator	School culture	
		Leadership	
School size	< 1,000	School culture	
		School structure	
		Leadership	Leadership
	> 1,000	Policy	Policy
		School culture	
		School structure	
		Leadership	Leadership
School tradition	Weak	Policy	
		School structure	
		Leadership	Leadership
	Strong	School culture	
		School structure	
		Leadership	Leadership

Position. Teachers without administrative responsibilities (*N*=188) seemed to be influenced solely by internal school conditions such as school culture, structure, and leadership when it came to OLP. Transformational leadership exerted both direct and indirect influence on the collective learning process itself, whereas culture and structure respectively played supportive roles. For staff undertaking administrative tasks (*N*=37), leadership continued to be important. Through the support of positive culture, leadership continued to exert a direct effect upon OL. However, school structure ceased to be an important factor as it had little direct effect on collective learning.

School size. Smaller schools seemed to be less susceptible to external influence when causal factors for organizational learning process were reviewed. Internal school conditions, notably transformational leadership and supportive culture, continued to play key roles in guiding collective learning. Such a superficial explanation is not convincing. Earlier works (cited in Lam, 1985b) pointed to two interesting sociological and organizational findings. First, smaller institutions will be more severely disturbed by external changes than larger ones. Incidentally, given that most smaller schools are located in simpler social settings—rural areas and/or upper socioeconomic status districts, as reflected in this study, where politicking in the communities is far less complicated than in mixed urban centers—school authorities will attempt to shield core technology from direct external interference (Scott, 1987). In larger schools, however, the causal network developed from the path model seemed to be complex. External policy changes triggered responses from the school

culture, structure, and leadership, and these in turn seemed to push for OL in schools. Apparently larger schools need unified guidelines to coordinate internal administration. Incongruent external directives and internal operational procedure necessitate group decision-making to bring order to chaos. Adjustment produces ripple effects across school organizations.

School tradition. Tradition seems to be a powerful backing force for defensive organizational routines. Schools with weak traditions allowed external stimuli to bring changes to group values and leadership behaviors before collective learning took effect. Schools with strong traditions seem to be governed more by internal dynamics than external directives in engaging in collective learning. Their rate of change hinges on the degree of compatibility between organizational norms and those guiding changes, flexibility of structure, and leadership ability to direct change. As external changes may reorder the priority of the school organizations, alter the existing working relationships among staff, modify political interests of groups, or disturb the current arrangements of resource distribution, there would be no lack of defenders who would resort to a different rationale to maintain familiar routines. This would be challenging for school leadership to transform the culture, restructure the working arrangements, and empower groups to make decisions collectively.

Overall patterns. Despite some variations among the contextual backgrounds of participants, it is noted that the prevailing influence of organizational learning process comes primarily from internal school conditions. Transformational leadership, supportive structure, and culture are key factors that promote OL. On the other hand, only one environmental factor, policy changes, occasionally roused schools from a complacent state and set them to exploring alternative strategies to overcome problems.

Contextual Variables and OLO

Four contextual factors were found to facilitate organizational learning outcomes. These include gender, position, school size, and tradition.

Gender. Male teachers ($N=126$) were quite comparable to female teachers ($N=102$) in that they all depended on favorable internal condition to undertake group learning. They counted on leadership being willing and able to change, and a supportive culture and flexible structure to convert collective learning into tangible outcomes. Female teachers needed additional external stimulus, in this case policy changes, to endorse their efforts. Gender research is on the threshold of exploring the relationship between gender and learning style, but it may be premature to draw on some tentative findings to make unwarranted generalizations, particularly in the area of learning in organizational settings. One might at best speculate that external policy changes further legitimized for the female teachers the belief that searching and selecting fresh alternatives was necessary.

Positions. Teachers with administrative responsibilities shared with their colleagues without those duties in one major respect. Their learning outcomes seem to be achieved without deference to external environmental constraints. Yet although those with administrative duties counted on transformational leadership to convert learning into tangible outcomes, other teaching staff had to depend on structure and a supportive culture to realize the same aims. Probably those charged with administrative duties had to work more closely

Table 3
Patterns of Causal Relationships with Organizational Learning (Outcomes)
Derived from Path Analyses Based on Significant Contextual Variables

	Contextual Variables	Variables having Direct Effects	Variables having Indirect Effects
Gender	Male	School culture	
		School structure	
		Leadership	Leadership
	Female	Policy	
		School culture	
		School structure	
		Leadership	Leadership
Position	Teaching staff	School culture	
		School structure	
		Leadership	Leadership
	Administrators	Leadership	
School Size	< 1,000	School structure	
		Leadership	Leadership
	> 1,000	Second-language demands	
		Enrollment fluctuation	
		Policy	Policy
		School culture	
		School structure	
		Leadership	Leadership
Tradition	Weak	Leadership	
	Strong	School culture	
		School structure	
		Leadership	Leadership

with school leadership, and leadership's ability to change will send a clear message to these staff as to how much they would have to do to match expectations. On the other hand, those working at the grassroots level, particularly in larger schools, were more responsive to their perceived internal school conditions in making contributions to output. If their working environment allows more opportunities to collaborate with their colleagues, and if the values of the workplace encourage experimentation and innovative practices, they would certainly take greater initiatives in sharing and putting into action what they discussed in meetings.

School size. Large and small schools varied mainly in their relative sensitivity to external constraints. For smaller schools, flexible structure and transformational leadership were viewed as sufficient for changing collective learning more speedily into outcomes. For larger schools, although internal conditions remained critical for learning outcomes to be accomplished, external constraints were also needed, in this case second-language demands, enrollment fluctuation, and policy changes to provide the needed occasions to overcome internal inertia.

School tradition. In schools with no strong tradition, transformational leadership was the only critical factor to lead the group to convert learning into

tangible outcomes. Obviously without a set of values associated with the school history, it was less likely that anyone, including the experienced staff, would raise any barrier to change. In schools with a strong tradition, efforts to modify the existing culture, structure, and leadership behaviors, perhaps incrementally, would be needed to construct new working conditions for preparing staff mentally for change. In any case, the role of the principal in shaping organizational learning outcomes was critical; without this any attempt to break organizational inertia would be futile.

Overall patterns. Favorable internal conditions appear here as the sole important prerequisite for organizational learning to reach its logical end. Transformational leadership continues to exert both direct and indirect influence on learning outcomes, reaffirming its prominent role in preparing schools for change. Environmental variables are significant only when internal conditions are overly complex. Vested interests and existing political relationships constitute a strong defensive wall that often proves too difficult to breach. To those who are discontent with the status quo, external changes serve both as motivators and as catalysts for undertaking bolder innovative actions. The contextual backgrounds of individuals and schools on various occasions also exert their relative influences, although in terms of magnitude they are of secondary importance. Nevertheless, without proper acknowledgment of their effect, OL will not take root.

Conclusion

Emerging from the present findings is a clear affirmation that internal conditions in Manitoba schools outrank factors from other sources as the most critical elements in promoting organizational change. They continue to exert a prevailing influence on OLP and OLO, a reconfirmation of the conclusion drawn from the study of Leithwood et al. (1998). Furthermore, such a persistent influence remains unchanged regardless of the type and nature of schools or individual personal and background factors. In this context the findings support the proposition from the strategic choice schools that it is the leaders through their voluntary choice that bring about organizational change.

The rejection of the position assumed by the environmental deterministic school can pose a problem with the current observation. Indeed this phenomenon seems to be in contrast to the thrust of school reforms in Canada, the US, and the UK, where external pressure is supposedly coercing schools to increase their performance and productivity. A plausible explanation is that schools under extreme external pressure may go through the rituals of cosmetic change without a more serious reflection of the existing values or a collective effort to adopt a new paradigm (Arygris & Schön, 1996). Few external stimuli from the present findings are directly accountable to OL. On the other hand, it will be noted that it is external pressure that provides a convenient incentive or source of motivation to break away from individual and organizational inertia that will otherwise perpetuate a state of equilibrium.

The personal factors of staff and contextual variables of the school may not stand out as major forces when compared with internal school or environmental conditions. Yet the relative effects of these factors cannot be ignored. For example, the same three factors, namely, positions of the staff in an organizational hierarchy, school size, and the tradition of the school, produce important

effects of OLP and OLO. Their intricate relationship with the school's effort at self-renewal sends a clear message to leaders that change is a complex phenomenon that cannot be simply transplanted from one school to another. Gender differences in achieving learning outcomes in an organizational setting further complicate the process of implementing reforms in schools. Because gender studies in this domain are still in the pioneer stage, we might have to wait for more empirical work to illuminate the present finding.

Despite all these challenges and complexities, the findings concur with existing literature that few alternatives are available to school leaders other than to fortify their schools into learning organizations in the face of uncertainties. With globalization and marketization of public education continuing to change the landscape of public schools, leaders need to stay on a course of rigorous self-reflection and self-renewal. Otherwise they may lose the initiative and be swept away by external forces into a direction contrary to professional and educational interests.

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